

FAQ - Frequently Asked Questions



ITS & Signals:

Signals & Geometrics

Will a traffic signal reduce crashes at an intersection?

Traffic signals may not reduce crashes at an intersection. Typically, when a traffic signal is installed at an intersection, the total number of crashes increases, but the severity decreases. Traffic signals may result in a decrease in right-angle crashes. However, they may also result in an increase in rear-end crashes.

Does a traffic signal control speed?

No. In some cases where speeding is a problem, citizens may believe a traffic signal is necessary to slow traffic down. However, a traffic signal may sometimes result in greater speeds because drivers accelerate to try to "beat the light" before it goes red.

So how does the NCDOT decide whether a traffic signal should be installed at an intersection?

NCDOT receives many requests for traffic signals. All of these requests are investigated and many are denied even when a citizen feels one is needed.

NCDOT follows national minimum standards to determine if a traffic signal is warranted. These standards are in the Manual on Uniform Traffic Control Devices which is published and maintained by the Federal Highway Administration.

Using these standards, traffic engineers perform a detailed study of existing conditions to determine if a traffic signal is warranted at the location. They study the number of pedestrians, traffic flow, accident history, vehicle and pedestrian delay, and the presence of school children. Engineers use this information to determine if a traffic signal is the best method of controlling traffic at the location. During the study, the engineer may determine that other traffic control methods may be more beneficial such as speed limit signs, increased law enforcement, improved regulatory or guidance signs, improved pavement markings, geometric improvements, or other innovative techniques.

How can I request a traffic signal?

You can request a traffic signal by writing to the State Traffic Engineer at:

NCDOT-Traffic Engineering and Safety Systems Branch
1561 Mail Service Center
Raleigh, NC 27699-1561

Once your request is received, a detailed study will be conducted.

Why does it take so long for NCDOT to install a traffic signal?

When an engineering study indicates a traffic signal is warranted, it is placed on a needs list where it must compete with other roadway improvements. To establish a traffic signal's priority on the needs list, the NCDOT determines a cost-to benefit ratio to ensure available funding is spent efficiently.

Once funding has been successfully established for a traffic signal, detailed plans and construction specifications for the improvements must be prepared. Fieldwork must be conducted to account for utility conflicts such as those posed by overhead electrical lines and underground sewer or water lines. Sometimes, arrangements must be made with the utility provider to have these relocated. Once the plans and specifications have been developed, equipment must be procured for NCDOT personnel to install the traffic signal or a contract must be developed by NCDOT and bid on by traffic signal contracting firms for installation of the signal.

How much does a typical traffic signal cost?

Depending on the features required at a specific location, a traffic signal could cost anywhere from \$50,000 to over \$100,000. In addition, the NCDOT is responsible for paying monthly electrical bills to utility providers.

Why can't I get a left-turn arrow installed at a traffic signal?

Although left-turn arrows benefit turning vehicles, they may also increase the waiting time for other motorists and pedestrians at the intersection. The NCDOT has established criteria for determining where left-turn arrows may be warranted. This criteria includes such factors as how many vehicles are turning left versus how many vehicles they

are opposing, how well the traffic signal is operating without the left-turn arrow, sight distance at the intersection, and the accident history of the intersection.

Why aren't some traffic signals put in flashing operation late at night?

In one word: "safety". This has been the subject of much research within NCDOT. Studies have shown that collisions may increase at locations where traffic signals operate in late night flash. With today's modern traffic control signal equipment, wait times at sparsely traveled roadways late at night should be minimal.

The NCDOT has criteria to evaluate if a traffic signal may safely operate in late night flash. If the traffic signal meets this criteria, it is monitored on a regular basis to make sure crashes do not increase during the late night flash.

What do I do if the signal indications are blank such as during a power outage?

First, you should slow down as you approach the intersection. If law enforcement personnel are present, always obey their directions. If there are no law enforcement personnel present, drivers should approach the intersection with extreme caution and proceed through only when safe to do so.

How do pedestrian signals work?

A pedestrian signal allows a safer opportunity for pedestrians to cross the street at signalized intersections. When activated, the pedestrian signal provides time for the pedestrian to enter the street on a steady "Walk" and to finish crossing the street on a flashing "Don't Walk".

Where there are push buttons, you must press the push button to get the "Walk" signal. You may not immediately get a "Walk" indication. However, the traffic signal knows there is a demand for the "Walk" indication and is working a pre-programmed sequence to safely transition to the "Walk" indication.

Safety Tips

- Cross only at an intersection.
- Make eye contact with drivers before you step in front of their vehicle.
- Always watch for turning vehicles, especially where right turns on red are allowed. Drivers may not see you.
- Cross quickly and be alert. Minimize your time in the street.
- Hold small children by the hand when crossing.

WARNING:

Though signals assign your legal rights in the intersection, always use caution when crossing the street. Painted lines do not stop cars.

Where there are pedestrian indications, why is there not enough pedestrian walk time to cross the street?

For signalized pedestrian crossing approaches, the "Walk" or symbolic walking person indication will allow pedestrians to step off the curb to start their walk across the street. The flashing "Don't Walk" or upraised hand indication is to warn pedestrians who have not yet entered the intersection that it is too late to safely get across the street before the traffic signal will change to allow vehicles to proceed. A steady "Don't Walk" or upraised hand indication means you should not be in the intersection.

Why do some traffic signals take so long to change?

The length of your wait depends on the traffic signal cycle length. The traffic signal cycle length is determined based on traffic volumes and traffic patterns specific to each site. Heavily congested major corridors may require longer cycles to accommodate higher volumes of traffic. Though these longer cycle lengths may move more vehicles through an intersection in a given time frame, they may increase delays for some drivers.

Then why isn't there enough green time at a traffic signal to get the traffic through all approaches?

The amount of green time for each movement at a signalized intersection varies according to vehicle demand. When there is not enough green time for each movement to get through the intersection it is often because the intersection is over capacity and has more vehicles than it was designed to handle. The NCDOT attempts to time these traffic signals to minimize overall delay for the majority of motorists at the traffic signal. Therefore if you are on a minor approach or a side side street, you may experience significant delay where the main movement is along a heavily congested corridor.

So how does NCDOT time its traffic signals?

The objective of traffic signal timing is to alternate the right-of way between traffic in such a manner as to minimize average delay to all traffic while ensuring a safe operation.

The majority of traffic signals in North Carolina are designed to be either traffic responsive or part of a traffic signal system. Traffic responsive traffic signals are designed to extend green displays up to a preset maximum time limit based on traffic demand. Typically, NCDOT will use traffic counts that have been taken at the intersection to model the traffic signal operation and determine the preset maximum time. Timing for traffic signals that are part of a traffic signal system is typically designed to progress groups of vehicles along a corridor. The department uses traffic modeling software along with traffic counts to determine appropriate traffic signal timings to progress these groups of vehicles along a corridor. Once timing has been programmed for the traffic signal, engineers will observe traffic flow and further adjust the traffic signal timing to accommodate site-specific issues as needed.

Why doesn't NCDOT install more (or less) Red Light Photo Enforcement Cameras?

The NCDOT does not have legal authority to install red light photo enforcement cameras. The use of red light photo enforcement cameras by individual municipalities is currently authorized through legislation passed by elected officials in the North Carolina General Assembly. The operation of these systems is currently the responsibility of the local municipality